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The Nomenclature Question at Genoa.

While I publish in the *Botanical Gazette* some more general points concerning my recent mission to Genoa, I give here a somewhat specific account of the action of the Botanical Congress in reference to the question of nomenclature. The Berlin committee was ably represented by its chairman, Professor Ascherson, who opened the question by reading (in French) abstracts from his published paper,* copies of which (in German) were distributed liberally among the members. In this paper Prof. Ascherson gives an interesting account of the origin of the work of the Berlin committee, the sending of the circular so familiar to us in America to 706 botanists, of whom 329 were German and the suggestions made by the various botanists who responded, together with their votes on the propositions I, II, III, and IV. The representation of American botanists in this vote is small. It may be of interest to know their opinions. The following voted for all of the four propositions: Brendel, Eaton, Hitchcock, Macoun, Meehan, Mohr, Parish, Redfield, Robinson, Seymour, Werthner. The vote of W. M. Canby is recorded for propositions II and III. Prof. Eaton makes the recommendation, which is not likely to be supported by many American cryptogamists, that for the priority of genera and species among ferns, we should not ante-

* Berichte der Deutschen Botanischen Gesellschaft, Jahrgang 1892, x, 327-359.

date Swartz*; among mosses, Hedwig†; among Algæ, Agardh‡; among lichens, Acharius§, and among Fungi, Persoon¶. For one, I would most vigorously oppose his proposed rejection of S. F. Gray's hepatic genera, for they can in no sense be regarded as "*nomina nuda*."

The following memoranda from the botanists of the British Museum will also be of interest: "We do not quite agree with the first rule as stated. It appears to us that the genera should enjoy the same priority as the species, and should be quoted from the first edition of the Genera Plantarum, 1737. We do not approve of quoting an edition which was not published under the authority of Linnæus. If it were possible to adopt 1753 for both genera and species we would approve; but this does not seem to us to be possible. We therefore suggest that the first rule should read: The starting point of the priority of genera is the year 1737, and of species 1753."

The above bears date of 2d July. Under date of 27th July, they again write: "We do not see how we can stop short of 1737 in dealing with genera as *genera*. But as binominal names —and every specific name includes, of course, the generic as well as the trivial designation—did not exist until the publication of the 'Species Plantarum' in 1753, we agree that a name given in that work cannot be set aside for one, the generic part of which was ignored or set aside by Linnæus. And we, therefore, acknowledge that this *practically* fixes the date of genera to 1752.

Notwithstanding this reservation, the British Museum botanists are recorded as voting for the four resolutions, together with Braithwaite, C. B. Clarke, and a few others from Britain less known.

M. C. Cooke, A. W. Bennett and G. Massee subscribe to I, II and III; and Sir Jos. Hooker, Hemsley and B. Daydon Jackson, to propositions II and IV. The great majority of the votes came from the German botanists, and, with very few exceptions, were for the four original propositions as stated in the circular.

*Synopsis Filicum, 1806.

†Species Muscorum, 1801.

‡Species Algarum, 1823-1828.

§Lichenographia Universalis, 1810.

¶Tentamen Dispositionis Methodicæ Fungorum, 1797.

After the reading of Prof. Ascherson's paper, we were called upon to report the action of the American botanists. Fortunately, we had a limited supply of our Rochester circulars with us, and by distributing these before the report was given, the contents were more satisfactorily grasped during the presentation of the report.

In presenting the report we spoke substantially as follows:

"As delegate from the American Association for the Advancement of Science, I come direct from one of the largest and most harmonious gatherings of botanists ever held in America, and a part of my duty and pleasure is to report to this Congress our recent action in regard to the question of botanical nomenclature.

"As is doubtless well known in Europe, there has been, hitherto, much difference of opinion in America regarding the starting-point of nomenclature, and various botanists using different bases have produced considerable confusion. These differences had their origin in a dissent from the system so long held at Kew, which was more or less closely followed by our late lamented Professor Asa Gray. The possibilities recently opened by Otto Kuntze in the matter of upheaval of nomenclature, have precipitated a desire for *some* uniform and fixed system.

"The following report which I bring is the result of long-continued conference on the part of our botanists, and in passing upon the principles there was practical unanimity throughout the meetings. It will be seen that the system adopted by us is not widely different (so far as the two cover common ground) from that proposed by our German friends. I note one or two points of *real* difference which, though seemingly small, are important:

I. The American botanists urge the date 1753 instead of 1752 as the starting-point for both genera and species. Our reasons for this are: (1.) In Linnæus' *Species Plantarum* (1753) binominal nomenclature was first used in a comprehensive and systematic manner. (2.) The adoption of the later date will give a *single* starting-point for nomenclature instead of a double date. (3.) The adoption of the later date will necessitate less change in the generic and specific names now in common use.

II. "The American botanists urge that the adoption of '*priority of publication as a fundamental law*,' together with the

orthodox principle of '*once a synonym, always a synonym*,' while causing some changes at first, will ultimately result in greater stability."

With this the Rochester resolutions were laid before the Congress. It is needless to say that the weight of authority represented in our platform, and especially the unanimity with which it passed our body, produced a marked impression on the Genoa Congress. The case was then fairly opened, and one proposal after another was brought forward and discussed in polyglot. Prof. Marshall Ward regretted the absence of any representative from Kew, and favored postponing discussion of the question on the ground of linguistic difficulties. But the Congress had long thought and were ready for some decisive action in spite of the greater conservatism of the English botanists. Some favored voting on all four of the Berlin propositions, but it was finally decided that it would be best to leave to a committee the fourth proposition and to vote on I, II, and III. It was at this point that the influence of the American resolutions was most strongly felt. An amendment was proposed which substituted 1753 for 1752 as the starting-point for genera. This modification was warmly discussed, and, guided more by instinct than by a clear understanding of the proper stage of the discussion, we were able in a few words to emphasize the superior advantages of the single date. At this juncture the vote was taken, and 1753 was adopted by a large majority. The three Berlin propositions as amended were then passed *nem. con.*, except that a later test vote to ascertain how many would prefer 1737 to 1753 resulted in four votes for the earlier date, mostly by Italian botanists.

Action on Proposition IV was deferred, and a committee of the Congress was appointed who should recommend what was deemed most feasible in that matter. On this committee your delegate served as a member, and the result of their deliberations was reported at a subsequent meeting of the Congress. The only remaining action was the endorsement by the Congress of a recommendation introduced by Prof. Prantl, which, in his own language, reads as follows: "Gattungsnamen, welche nicht im Sinne der binären Nomenclatur gegeben sind, sind zu verwerfen."*

* Ascherson's paper, *l. c.* 350.

At a later meeting, the committee appointed having considered the numerous questions that must of necessity arise in connection with the whole problem, to say nothing of the still unsettled Proposition IV and very important principles embodied in the Rochester resolutions, decided to recommend an International Standing Committee, composed of representative botanists, to whom such questions should be referred for consideration and recommendation. This committee will report at a future Congress, if not before.

The following Standing Committee was approved by the Congress. The appointment was in alphabetical order, but Prof. Ascherson is properly the chairman: Prof. P. Ascherson, Berlin; Prof. H. Baillon, Paris; J. G. Baker, Kew; Prof. A. Batalin, St. Petersburg; Prof. N. L. Britton, New York; Prof. E. Bureau, Paris; A. de Candolle, Geneva; Prof. T. Caruel, Florence; Prof. L. Celakovsky, Prague; C. B. Clarke, Kew; F. Crepin, Brussels; Prof. J. M. Coulter, Bloomington, Indiana; Th. Durand, Brussels; Prof. A. Engler, Berlin; Prof. Th. Fries, Stockholm; Prof. E. L. Greene, Berkeley, California; Prof. J. A. Henriques, Coimbra; Sir J. D. Hooker, Kew; Prof. A. Kerner von Marilaun, Vienna; Prof. F. Krasan, Graz; Prof. Joh. Lange, Copenhagen; E. Malinvaud, Paris; Dr. Fr. Müller, Varel; Prof. Perez-Lara; Prof. L. Radlkofer, Munich; Prof. P. A. Saccardo, Padua; Prof. J. Schmalhausen, Kiew; Prof. Suringar, Holland; Prof. M. Willkomm, Prague; Prof. V. B. Wittrock, Stockholm.

It will thus be seen that among the thirty members Germany has five representatives; Great Britain, the United States, Austro-Hungary and France have three each; Italy, Russia, Sweden and Belgium have two each; while Switzerland, Denmark, Holland, Spain and Portugal have each a single representative. To give each country a representation, and among the larger, one somewhat in proportion to the number of working botanists concerned, a better division could not have been made without making the committee unduly large and cumbrous.

So much, then, for the work of the Genoa Congress in its relation to nomenclature. As American botanists, we have every reason to congratulate ourselves that we are on the right track. So far as any action was taken at Genoa, it was directly in ac-

cord with the Rochester resolutions. The remaining resolutions, while not acted upon, were received with favor both in public and in private. It will only be necessary to make a forcible presentation of (1) what constitutes the publication of a species, and (2) the importance of our principle of homonyms, to carry conviction to the Continental botanists. Later conversations at Kew convince us that the English botanists will accede to any reasonable standard that promises uniformity and fixity.

LUCIEN MARCUS UNDERWOOD.

DEPAUW UNIVERSITY, October 10th, 1892.

Palaeobotany of the Yellow Gravel at Bridgeton, N. J.

BY ARTHUR HOLLICK.

(Abstract from manuscript in preparation for a bulletin of the United States Geological Survey. Read at the meeting of the Club on October 11, 1892.)

A year ago, in the course of an address in memory of the late Dr. John I. Northrop, before the New York Academy of Sciences, I expressed the hope that much of the work which he left unfinished would be completed by others, and not be lost to science. To me subsequently fell the responsibility of preparing a portion of his work for publication, and the results of such preparation form the basis of this paper.

Some ten years ago attention was first called to impressions of fossil leaves, in a more or less incoherent sandstone, occurring in the neighborhood of Bridgeton, N. J. No systematic study of the material was attempted, however, until many years afterwards, when Dr. Northrop took hold of it, and not only studied the specimens thus far collected but added largely to them by personal collection.

Much of the material first obtained was too poor for proper identification, but the later collections contain specimens well preserved, and afford good subjects for study.

The geological aspect of the matter I shall not discuss in this paper—that will be treated elsewhere. In what follows I propose to discuss the botanical facts involved, especially in reference to the efforts which have been made to compare and identify the fossil forms with genera and species now living.

All the material which is available for study and identification consists of leaves and pods, and the medium in which they are preserved is so coarse that much of the finer nervation and dentation is obliterated. Nevertheless, the specimens in general are very satisfactory, and from them the following species and genera have been identified:

Magnolia acuminata, L.

Magnolia glauca, L.

Asimina triloba, (L.), Don.

Ilex opaca, Ait.

Ilex Cassine, L.

Amelanchier Canadensis, (L.), Medic., var. *rotundifolia* (Mx.) T. & G.

Liquidambar Styraciflua, L. This is represented exclusively by a three-lobed variety. It so closely resembles *L. Europæa*, Al. Br., that I was at first inclined to refer it to that species, but as we have in Mexico a variety of *L. Styraciflua* with three lobes, there seems to be no reason why they should not be considered identical. The significant fact has also been pointed out to me by Dr. N. L. Britton, that young shoots of *L. Styraciflua* often bear three-lobed leaves, thus indicating that the ancestors of our five and seven-lobed species were represented by forms such as those from Bridgeton. If it should be proven that the Mexican variety is worthy of specific rank, then the Bridgeton fossil form should be renamed in conformity with it.

Nyssa uniflora, Walt. A number of irregularly and coarsely-toothed or entire leaves, which were at first mistaken for some species of *Quercus*, are evidently to be referred to this species. They appear to show even greater diversity in outline than the living species.

Nyssa Caroliniana, Poir.

Viburnum Bridgetonense, Britton. One of the most abundant species represented, and one of the first to attract attention. Dr. Britton was the earliest to note its generic relationship with *Viburnum*, and to propose for it the name which is here adopted. A large number of forms are included under this name, and it is probable that several new species, or even genera, might be separated from it. Some indicate relationship to *Vitis*, others to *Populus*, and further comparisons will have to be made before

these points can be settled. In view of the fact that the leaves of *V. dentatum*, L. vary on the same bush, almost as greatly as do these fossils, it would seem as though a conservative attitude would be the safest, leaving to others the responsibility of seeing generic and specific differences in the many leaf-forms represented.

Leucothoë racemosa, (L.), A. Gray.

Clethra alnifolia, L.

Cinnamomum, sp ?

Laurus, sp ?

Persea Borbonia, (L.) Spreng.

Ulmus Americana, L.

Planera aquatica, Gmel.

Ioxylon pomiferum, Raf.

Morus, sp ?

Hicoria Pecan, (Marsh), Britton.

Ostrya Virginica, (Mill) B.S.P.

Quercus, sp? A number of entire, sparingly-toothed or irregularly-margined leaves have been referred to this genus, which apparently have affinities with *Phellos*, *imbricaria* or *heterophylla*, but, as a rule, the nervation is more or less obscure.

Castanea, sp ?

Amongst the remains of uncertain affinities two are very prominent by reason of their abundance. One of these is a large leguminous pod, with a dorsal suture and prominent wing. All attempts thus far made to identify it positively with any North American genus has failed. Its nearest affinities seem to be with *Mesoneuron*, *Pongamia* (*Derris*) or *Lonchocarpus*, but no leaves of either one of these genera have yet been satisfactorily identified. There would be nothing startling in the occurrence of an Eastern Asiatic genus amongst this flora, as *Diospyros* is common to both, and the well known similarity of the two floras at the present day has long been a subject of comment.

The other organism which has not yet been definitely placed is a reed or palm-like blade, with parallel nervation. Only fragments have been found, and these have been compared successively with palms, grasses and sedges, but without satisfactory results. Similar organisms have been described by Lindley and

Hutton under the name *Cyperites* and by Watelet as *Anomalophyllites* and it is possible that one of these names may have to be adopted.

It is to be understood that the above names are somewhat provisional, and may be changed in the light of some further material which yet remains to be figured and studied. No con siderable alteration, however, will ensue, although several new species will doubtless be added.

From the above it will be seen that of the species which have been identified nearly all are such as are well known in the latitude of Virginia at the present day. In other words, at the time these leaves were deposited in the sands of Southern New Jersey a flora must have flourished there similar to that of Virginia to-day, demonstrating the existence of a warmer climate than now prevails there. The significance of this fact concerns the geologist more than it does the botanist, but, as a last word, it may not be amiss to say that apparently these fossils represent the most recent extinct flora of which we have any knowledge, and bring us very close to the living flora of to-day.

Plants Collected at Mt. Ktaadn, Me., August, 1892.

Mt. Ktaadn is not a single peak as some imagine, but a mountain with acres of table lands, broken by slight eminences and depressions. Its top is shaped somewhat like a horseshoe, and from one heel of the shoe around to the other it is perhaps seven or eight miles. This horseshoe encloses a basin of the same shape, which has nearly vertical walls two or three thousand feet high. The basin bears some resemblance to the crater of a volcano, except that it is open on one side, and this peculiar formation gives it an interest greater than that of most other mountains of the same height, which is about one mile. From the toe of the shoe a long ridge runs into the center of the basin, which affords an easier and less dangerous ascent than do the steep sides. There is a small pond near the opening from the basin, fed by little rills from the sides, which during heavy rains become considerable torrents, dashing down the almost perpendicular walls, carrying stones with them in their descent, and wearing gorges into the

solid granite of which the mountain is composed. The base of the mountain is very irregular in shape, and must be at least twenty-five miles in circumference. On the northeast side is a pond which is doubtless the highest body of water in Maine. This is beautifully situated in a wooded hollow, and receives a little rivulet which plunges down a precipice a hundred feet or more, as near as I could judge from a distance. It has only been visited in the winter by men on snow-shoes. This pond is the headwaters of the Wissattaquoik stream, the principal tributary of the east branch of the Penobscot river.

The mountain seems to be composed of red granite. The top is broken into stones of all sizes, and the highest points are simply piles of these stones, which are covered with a yellow and a black lichen. There is some drift material, which would indicate that the mountain was covered with ice during the glacial period.

The base and sides are heavily wooded principally with spruce (*Picea Canadensis*), some fir (*Abies balsamea*), and yellow birch (*Betula lutea*), with a few other trees scattered among them. These grow smaller and smaller as they approach the top, and the spruce gradually gives way to fir, which finally becomes scrub. This is three or four feet high, usually dead at the top, and growing so closely together as to be almost impenetrable. A little farther up it dwindles away to a foot in height, so that one easily walks over the tops, sometimes on the interlaced boughs without touching the ground. A fir only three feet high was six inches in diameter, and a section showed over one hundred rings, which tells the story of its slow growth.

The other vegetation is principally alpine. All plants were low; three or four inches being as high as they could rear their heads. Everything hugged the ground as if its very life depended on it. Some plants not more than an inch high were in bloom, the flowers appearing to come out of the ground. *Carex rigida*, var. *Bigelovii*, *Juncus trifidus*, and *Deschampsia cæspitosa* were abundant, and covered some flat places, making them look quite like a lawn.

There were three other plants common all over the top of the mountain, in which I was interested gastronomically, as well as

botanically. These were mountain cranberry (*Vaccinium Vitis-Idæa*), bilberry (*V. uliginosum*), and black crowberry (*Empetrum nigrum*).

We gathered these, stewed them with sugar, and found them a very good sauce. There was not much difference in their taste The cranberries were, perhaps, rather the best.

The plants in the following list I collected either on the top of the mountain or on the north side of the basin, on the slope facing the south. Some half-dozen are reported from this locality for the first time. Two others, *Agrostis canina*, var. *alpina*, and *Carex atrata*, var. *ovata*, are new to the State, and *Lycopodium alpinum*, has, I believe, never before been found in the United States.

Arenaria Grœnlandica, (Retz.), Spreng.
Potentilla tridentata, Ait.
Potentilla fruticosa. L.
Epilobium Hornemanni, Reich.
Heracleum lanatum, Michx.
Solidago Virga-aurea, L. var. *alpina*, Bigel.
Aster radula, Ait.
Gnaphalium supinum, Vill.
Arnica Chamissonis, Less.
Prenanthes Boottii, (D.C.), Gray.
Prenanthes Serpentaria, Pursh. var. *nana*, (Bigel.), Gray.
Campanula rotundifolia, L.
Vaccinium uliginosum, L.
Vaccinium Vitis-Idæa, L.
Chiogenes hispidula, (L.), T. and G.
Arctostaphylos alpina, (L.), Spreng.
Cassiope hypnoides, (L.), Don.
Bryanthus taxifolius, Gray.
Rhododendron Lapponicum, Wahl.
Ledum latifolium, Ait.
Diapensia Lapponica, L.
Castillea pallida, Kunth, var. *septentrionalis*, Gray.
Betula glandulosa, Michx.
Alnus viridis, D.C.
Salix Uva-ursa, Mx.

Empetrum nigrum, L.
Habenaria dilatata, (Pursh), Gray.
Listera cordata, (L.), R. Br.
Juncus filiformis, L.
Juncus trifidus, L.
Luzula melanocarpa, (Ehr.), Desv.
Scirpus cæspitosus, L.
Eriophorum alpinum, L.
Carex atrata, L. var. *ovata*, Boott.
Carex canescens, L. var. *alpicola*, Wahl.
Carex scirpoidea, Michx.
Carex rigida, var. *Bigelovii*, Tuckerm.
Phleum alpinum, L.
Agrostis hiemalis, (L.), B. S. P. (*A. scabra*, Willd).
Agrostis canina, L. var. *alpina*, Oakes.
Cinna pendula, Trin.
Agropyrum violaceum, Lange.
Lycopodium Selago, L.
Lycopodium annotinum, L. var. *pungens*, Spreng.
Lycopodium alpinum, L.

F. P. BRIGGS.

ORONO, Me., Oct. 18, 1892.

The Canby Herbarium.

The large and fine herbarium of Mr. Wm. M. Canby has been purchased by the College of Pharmacy of the city of New York, and will be deposited in their new building, now in process of erection upon 68th street, near the Boulevard. This, in connection with the herbaria of Columbia College, of the Torrey Botanical Club and of several private individuals, will probably render this city the most favorable point in the country for the study of collections. In announcing the purchase at a recent college meeting, Prof. Rusby read the following sketch of the herbarium:

Mr. William M. Canby is a citizen of Wilmington, Delaware, distinguished at home for his financial station as the president of the Wilmington Savings Fund Association and his connection with various railway enterprises, as well as for his personal char-

acter and public service, and throughout the scientific world for his fine abilities as a systematic botanist. His early fondness for botanical pursuits found a welcome opportunity for gratification when a bronchial trouble drove him to Florida early in the year 1858.

The tedium of an exile from home was altogether overcome when the pine woods about Magnolia, on the St. John's River, were brightened by the flowers of early spring. It was the collection made at that time which was the foundation of his herbarium. Coming homeward by way of Savannah and Aiken, South Carolina, quite a large and varied collection was made. This was supplemented in August by a month's botanizing in the mountains of southwestern Virginia, especially about the cliffs of New River and the Salt Pond Mountain. A two months' visit to Europe next opened some opportunities for exchange and correspondence.

Up to August, 1860, efforts were mainly confined to obtaining specimens of the flora of Delaware, eastern Pennsylvania and the pine barrens of New Jersey. At the date mentioned an extensive journey was made to New York, New England and Canada. The collections made at this time enabled him to exchange extensively with botanists in the three Western States of Ohio, Indiana and Illinois, as well as with some in New England and New York. Among these may be mentioned Dr. Vasey, Messrs. Hall and Bebb, of Illinois; Watson, Hale and Lapham, of Wisconsin; Sullivant, of Ohio, Dr. Sartwell and Judge Clinton, of New York, and several in New England. Prof. Porter and Dr. Traill Green, of Pennsylvania, were also most esteemed correspondents.

About this time, also, Mr. Canby became acquainted with Drs. Gray, Torrey and Engelmann, and active correspondence and most valuable exchanges were the result. The immense stores of foreign botanical treasures which at that time came to Dr. Gray were freely shared with Mr. Canby. He also became a purchaser of all valuable sets of American plants which he could find. The first of these were those of Dr. Parry and Messrs. Hall and Harbour, made in the then new country of Pike's Peak and the other Colorado mountains and the plains at their base.

He also purchased from the late Charles Wright more than two thousand numbers of his Cuban collection.

At the death of Mr. Sullivant his large collection was sent to Dr. Gray, and through his kindness the whole of the foreign collection was incorporated into the Canby Herbarium. This was particularly rich in the Spanish and Grecian collections of Boissier, in the Siberian and Altai collections of Bunge and Ledebour, in the Italian collections of Tenore and Gasparini, and in a large and valuable representation of the plants of France and Germany. He also obtained a part of the Venezuela collection of Fendler and a goodly number of that of Mandon and other collectors in the cordilleras of South America. He also received very many specimens from Schultes Bipontinus, Dr. Schnor and Karl Keck, of the various German countries, from Prof. Parlatori, of Italy René Lenormand, of France, and many others.

From Prof. Lenormand was also received a very fine collection of the peculiar flora of New Caledonia which had been placed in his hands for study and distribution. While on the subject of foreign specimens, I must not forget to mention the many thousands of species received from Baron von Mueller, of Australia, Prof. MacOwen, of South Africa, and Dr. Cheeseman, of New Zealand.

In this country Mr. Canby has exchanged with every one he could find who made good specimens and has purchased all the collections of Curtiss, Hall, Bolander, Kellogg and the other California and Oregon botanists. Later he corresponded with Prof. Post, of Syria, and received almost the whole of his excellent collections in Lebanon and the Holy Land. Mr. Ball sent him almost innumerable specimens from his herbarium, a very rich one, and also a suite illustrating his flora of Morocco. Besides this he made an excursion to Colorado and one to California, which resulted in the acquisition of several new species and many valuable specimens. In 1868 he again spent a winter in Florida, coming North as before by way of western South Carolina and Virginia.

This resulted in the gathering of about 12,000 specimens which were most valuable for exchange, as well as in a more direct way. He has also, either alone or in company with Drs.

Gray and Engelmann, Prof. Sargent and Mr. Redfield, made many excursions to the mountains of North Carolina, the results of which told largely upon the value of his herbarium. He also purchased the fine collection of Fendler in Trinidad, of Garber, Sintenis and others in Porto Rico, of Garber in South Florida, of Pringle, Palmer, Parry and Palmer, and others in Mexico and the border States, and has unusually full sets of the various government collections and of the various collectors of Sandwich Island plants.

The very extensive collections of Dr. Rusby in Arizona and New Mexico and in South America, and that of Mr. Bang in the latter continent are incorporated in the herbarium, as are also the valuable collections of Prof. Greene, of Mrs. Austin and Mrs. Ames, and of Prof. Lemmon, Dr. Parry, Messrs. Jones, Parish, Orcutt, Howell, Cusick, Tweedy, Suksdorf and many others in the far West and South. Most valuable and full collections were received from Dr. Mellichamp, of South Carolina, illustrating Elliott's flora.

Lastly, as one of the botanists of Mr. Villard's North Trans-Continental Survey, a full suite of all the collections made by it, and a most valuable one it was, came to this herbarium. In this were a number of new species, and many others so rare that they were only known before by single poor specimens. With these have come the collections of the Canadian Government Survey and a large contribution from Prof. Macoun's private collection.

From this it will be seen that during thirty years no collection which enterprise and money could secure has failed to become represented in the Canby Herbarium. The result is really a great one. With the Wood Herbarium and other specimens now in our collection, our Herbarium will number very close upon three hundred thousand specimens.

As regards the value of the herbarium I will hazard the opinion that $10,000 would not cover the actual cash outlay upon it. Add to this the thirty-four years of assiduous care on the part of the owner, and an amount by other distinguished scholars perhaps aggregating as much more, and you can judge whether $25,000 would not be a low estimate of its value. Its scientific value is, of course, beyond all estimate.

Notes upon Maine Plants.

Astragalus Robbinsii, which Mr. Fernald gives in his recent catalogue was probably included from a specimen found in the Blake Herbarium, which is really *A alpinus*.

Potamogeton mucronatus was probably included from specimens collected about Orono, by Mr. Fernald. The specimens contributed by him to the College Herbarium, under the above name, are *P. pusillus*, L.

Potomogeton rufescens, not included in Mr. Fernald's catalogue, has been collected by Miss Kate Furbish in Maine, and specimens are in her herbarium.

Potamogeton pulcher was found in a package of pond-weeds in the Blake Herb., marked in the hand writing of Rev. Joseph Blake, as having been collected at Wells, Me.

Nasturtium sylvestre, marked questionable in Mr. Fernald's catalogue, has been collected by Miss Kate Furbish at Moosehead Lake, Me.

Panicum agrostoides, was collected August, 1891, on gravelly shores of Chemo Pond, Bradley, Me., by Mr. F. P. Briggs.

Litorella lacustris was collected August, 1891, submerged in shallow water on the sandy shores of Chemo Pond, Bradley, Me.

F. L. HARVEY.

Botanical Notes.

Asplenium Bradleyi, Eaton. It has been generally assumed that this fern is intermediate between *A. ebeneum* and *A. montanum*. This was the view of Prof. Asa Gray, and Prof. D. C. Eaton expresses the same opinion, which was apparently shared by the late Dr. Sereno Watson. A very careful study of a good series of specimens from the Carboniferous Sandstone Bluffs of the Cumberland Mountains, in the Sequachee Valley, Marion County, Tennessee, has convinced me that *Asplenium Bradleyi*, has no close affinity with either. It would seem to be most nearly allied to *A. viride*, Huds.; indeed, plants from dark, cold

rifts in the Sandstone, are scarcely distinguishable from *A. viride*, and I suspect that *A. Bradleyi* may perhaps prove to be a stouter and more luxuriant southern form of *A. viride*. Since this idea has been forced upon my own mind, I have heard from General E. Kirby Smith, who has observed *A. Bradleyi* for some years on the western face of the Cumberland Plateau, near Sewanee, Tennessee, and who writes, "The difference between *Bradleyi* and *viride* is so slight they might be varieties."

R. M. MIDDLETON.

Scabiosa (*Succisa*) *australis, Wulf.* On the 26th of September of this year, I found this species growing in considerable profusion on a wet road-side just north of South Mt., near Pittsfield, Mass. It was well established over a space of two rods in extent, spreading by its creeping roots. The first announcement of this recent comer to our Flora, was made in the Addenda to the new edition of Gray's Manual, and I am informed by Dr. B. L. Robinson that Prof. Dudley had a few years ago sent specimens to the Harvard Herbarium from Farley's Point, Cayuga Lake. reporting it as fully established there in low ground, and that in 1889, Miss J. E. Whitside had found it growing in an old cemetery near Hammondsburg, Pa. The plant is a native of middle and southern Europe, and perhaps came to us in the same way as did *Hieracium aurantiacum* nearly twenty years ago, and will probably get as firm a foothold as that has acquired.

Oct. 8th, 1892. JOHN H. REDFIELD.

Cleistogamy in Cerastium viscosum. Cerastium viscosum, I find equally cleistogene with *C. nutans*, which I have already reported in this connection. Our garden is kept so clear of "weeds," that only one plant has been left for my observation. I suppose there is no reason why the same conditions should not exist in other plants at this season (Oct. 15th) as in this one. Having but the one plant I will deposit it in the Herbarium of the Academy of Natural Sciences of Philadelphia.

THOMAS MEEHAN.

Reviews of Foreign Literature.

Monographie des Especes du Genre Fraxinus. Alfred Wesmael. (Bull. Soc. Bot. Belg. xxxi. 69-117.)

In this monograph of the Ashes the author recognizes twenty-three species, distributed among four sections of the genus based on floral characters. These sections are: I. Ornus, with hermaphrodite petaliferous flowers in a terminal thyrsus, represented in America by *F. dipetala*, Hook. and Arn., and *F. cuspidata*, Torr.; II. Fraxinaster., having apetalous flowers in lateral panicles, not represented in America; III, Sciadantus, flowers apetalous hermaphrodite, in simple umbels, this section including only *F. dimorpha*, Coss. and Dur. of North Africa, and IV. Leptalix with polygamous flowers, including the American species *F. Schiedeana*, C. and S., *F. Greggii*, A. Gray, *F. Americana*, L., *F. nigra*, Marsh. (*F. sambucifolia*, Lam), to which *F. Caroliniana*, Mill. (*F. platycarpa*, Michx.) is referred as a sub-species, *F. quadrangulata*, Michx., and *F. anomala*, Torr., and two Asiatic species.

The treatment of *F. Americana*, L., is characteristic of the present tendency of several botanists of continental Europe to throw similar forms into a single species if possible, and recognize under the species a very large number of sub-species and varieties, without regard to geographical distribution or the constancy of slight differences. So M. Wesmael groups under *F. Americana*, *F. pistaciæfolia*, Torr., *F. Novæ-Angliæ*, Mill (*F. viridis*, Michx.), *F. Berlanderiana*, D. C., *F. Pennsylvanica*, Marsh. (*F. pubescens*, Lam), and *F. Oregana*, Nutt, all of which, in our opinion, had better be maintained as species. He has evidently seen but very few specimens of any of them. N. L. B.

Kreidepflanzen von Niederschöna. H. Engelhart. (Sitzb. und Abhl. der Nat. Ges. Isis in Dresden, 1891, 79-105; Taf. ii.)

This illustrated description of cretaceous plants, found near the village of Niederschöna, Saxony, is of interest to American palaeobotanists, inasmuch as many of the species identified are well recognized from our own horizons of the same age—such as *Eucalyptus Geinitzi*, Heer, *Liriodendron Meekii*, Heer,

Diospyros primæva, Heer, *Laurophyllum reticulatum*, Lesqx. *Widdringtonia Reichii*, Ett., etc.

The following new species are figured: *Pterophyllum Reichianum*, *Sterculia Geinitzi*, *Triplaris Cenomanica*, *Simaba Cenomanica*, *Salix Schœnae*, *Phacidium myrtophylli*, *Leguminosites cretaceus*, *Sapotacites Stelzneri*, *Mimusops ballotæoides*, *Sapindus Saxonicus*, *Chrysophyllum Velenovskpi*, *and Pinus*, *sp.*

A. H.

Index to Recent Literature Relating to American Botany.

Amherst Trees—James Ellis Humphrey (Amherst, Mass., 1892). A record of noteworthy native and cultivated trees in the vicinity of Amherst.

Anthoxanthum odoratum—Notes on the Flowers of. Theo. Holm. (Proc. U. S. Nat. Mus. xx. pp. 399-403, with plate; reprint).

Aristolochia gigantea. (Gard. Chron. xii. 341, illustrated.)

Aster sericeus. (Gard. & For. v. 473, with figure.)

Atriplices—New Californian. Willis L. Jepson. (Pittonia, ii. 303-306.)

Descriptions of *Atriplex depressa*, *A. cordulata*, *A. trinervata*, *A. verna*, and *A. fruticulosa.*

Bacterial Investigation of the Sea and Its Floor. H. L. Russell. (Bot. Gaz. xvii. 312-321).

Bomarea frondea. J. G. Baker. (Curt. Bot. Mag. t. 7,247.)

Calendario Botanico de San Juan Bautista y sus Alrededores. Jose N. Rovirosa. (La Naturaleza, (II.) ii. 106-126.)

Capparis flexuosa. J. D. Hooker. (Curt. Bot. Mag. t. 7,248.)

Compositæ—Studies in the. II.—Edward L. Greene. (Pittonia, ii. 287-290.)

A discussion of certain species of *Grindelia*, with descriptions of two new ones.

Cross and Self-fertilization. Minnie Reed. (Bot. Gaz. xvii. 330.)

Cryptogams collected by Dr. C. Willard Hayes in Alaska, 1891. Clara E. Cummings. (Nat. Geogr. Mag. iv. 160).

Daucus Carota—Notes upon. Chas. W. Hargitt. (Bot. Gaz. xvii. 328-330.)

Diagnoses of two new Genera. Edward L. Greene. (Pittonia, ii. 301-302).

Hesperalcea of the Malvaceæ and *Ramona* of the Labiatæ.

Dicraurus eptocladus, Hook. f. (Icon. Pl. xxiii. t. 2,227.)

Dr. Kuntze and his Reviewers. Edward L. Greene. (Pittonia, ii. 263-281.)

Professor Greene takes up the principal chapters which have been written in criticism of Dr. Otto Kuntze's "Revisio Genera Plantarum" and discusses them in his characteristically elegant style. Had we space at our command we would gladly reprint his entire paper, but must be content with commending it to our readers as an article which for erudition and execution must command their unqualified admiration.

Erythronium—Notes on certain Species of. E. B. Knerr. (Bot. Gaz. xvii. 326-328.)

Flowers and Insects—IX. Charles Robertson. (Bot. Gaz. xvii. 269-276.)

Account of the insects found visiting *Hydrangea arborescens, Philadelphus grandiflorus, Ribes gracile, Ludwigia alternifolia, L. polycarpa, Œnothera fruticosa, Gaura biennis, Circæa Lutetiana, Mollugo verticillata, Sambucus Canadensis* and *Houstonia purpurea*, with notes on floral structure.

Fossil Flora of the Bozeman Coal Field—The. F. H. Knowlton. (Proc. Biol. Soc. Wash. vii. 153, 154).

An abstract of the author's recent investigations, with a view to the determination of the age of the beds. Memoranda upon *Thinnfelda* and *Sphenopteris Lakesii*, Lesq., are given. From fruiting specimens this latter is now known to be an *Aspidium*. The flora is represented by forty-three species, of which three are new to science. A. H.

Fossil Plants, Hamilton, Ontario. C. C. Grant. (Journ. & Proc. Hamilton Assoc. 1891-92, 147, 148).

The author describes recent discoveries of fucoids allied to *Buthotrephis, Licrophycus*, etc., besides giving observations upon the supposed affinities of other organisms. This paper is sup-

plementary to a previous one published on pages 29-35 of the same journal. A. H.

Fungous Diseases and their Remedies. James Ellis Humphrey. (Trans. Mass. Hort. Soc. part i. 103, 1892).

Furcræa pubescens. J. G. Baker. (Curt. Bot. Mag. xlviii. t. 7250).

Galeandra—The Genus. (Gard. Chron. xii. 430).

Garrya—The Fruit of. Edward L. Greene. (Pittonia, ii. 292, 293).

Professor Greene points out that the fruit of this genus is capsular rather than baccate, and that the capsule has circumsessile dehiscence, and contends that this character, taken in connection with others, should exclude *Garrya* from the Cornaceæ.

Gesnera cardinalis. (Gard. xlii. 232, with colored plate).

Hardwood Trees of Illinois—Notes on the. J. Schneck. (Hardwood ii, No. 5).

Hoffmanseggia—Revision of the North American Species of. E. M. Fisher. (Contrib. U. S. Nat. Herb. i. 143-150).

The author recognizes seventeen species as occurring in the United States and Mexico, of which *H. Texensis*, from Texas, *H. glabra*, from Lower California, and *H. canescens*, from Coahuila, are described as new. *H. stricta*, Benth., is reduced to a variety of *H. falcaria*, Cav., and *H. intricata*, Brandegee, to a variety of *H. glabra*. Numerous new varieties are described.

Mr. Fisher does not discuss the relation of *Hoffmanseggia* to *Cæsalpinia*, other than remarking that *H. caudata*, A. Gray, is related to *Cæsalpinia* "in respect to sepals, petals and pod." It may be noted that M. Baillon has united the two genera in his "Histoire des Plantes," and material which we have recently received from Bolivia renders that position easily defensible. N. L. B.

Kunzia—The Genus. Edward L. Greene. (Pittonia, ii. 298, 299).

Note that this name must replace *Purshia*, DC. (1818), not Raf. *Kunzia* was published by Steudel in 1821.

List of Plants Collected by Dr. Edward Palmer in 1890 on Carmen Island. J. N. Rose. (Contr. U. S. Nat. Herb. i. 129, with plates).

Drymaria diffusa, Desmanthus fruticosus, Passiflora Palmeri,

Houstonia fruticosa, Brickellia brachiata, Gray, var. *glabrata* and *Euphorbia Carmenensis* are described as new.

List of Plants collected by the U. S. S. Albatross in 1888-'91 *along the Western Coast of America.* J. N. Rose, D. C. Eaton and W. A. Evans. (Contr. U. S. Nat. Herb. i. 135).

The new species described are *Oxalis Agassizi, Bryum cœlophyllum, Lophocolea apiculata* and *Schistochila quadrifida.* The two latter species are illustrated.

Live Oak—A Florida. Robert H. Lamborn. (Gard. and For. v. 483).

With illustrations of *Quercus Virginiana.*

Manglares in Ecuador—Die. Baron H. Eggers. (Bot. Centrabl. lii. 49).

Notes on *Rhizophora Mangle*, L., its habitat, manner of growth, and the various uses its wood is put to in Ecuador.

Mastigochytrium, eine nene Gattung der Chytridiaceen. G. de Lagerheim. (Hedwigia xxxi. 185-189, one plate).

Melanthus—The Genus. W. Botting Hemsley. (Ann. Bot. vi. 145).

Miscellaneous Notes. Marshall A. Howe. (Pittonia, ii. 291).

Notes on *Fucus evanescens*, Ag., *Gigartina radula*, Ag., from the coast of California, and on specimens of *Agrostis alba*, var. *vulgaris*, from Newfane, Vermont, with glumes four or five times the normal length.

New Mosses of America. F. Renauld and J. Cardot. (Bot. Gaz. xvii. 296).

Descriptions of *Dichodontium Olympicum*, from Washington, *Grimmia Hendersoni* and *Encalypta lacera*, from Oregon, and *Leskea obtusa*, from Pennsylvania and Louisiana.

New or Noteworthy Species. Edward L. Greene. (Pittonia, ii. 282; 293-298).

Micrampelis leptocarpa, Xanthocephalum lucidum, Plagiobothrys campestris, Lotus sulphureus, Hedysarum MacKenzii, var. *leucanthum, Claytonia nubigena, Eriogonum Davidsonii* (subsequently determined to be the same as *E. molestum*, S. Wats.), *Epilobium subcæsium, E. minutum*, var. *Biolettii, Ranunculus Turneri, Sambucus maritima* and *Habenaria maritima* are described as new.

Nicotiana tomentosa. J. D. Hooker. (Curt. Bot. Mag. t. 7252.)

Notes on Silurian Fossil Plants from Hamilton, Ontario. C. C. Grant. (Journ. and Proc. Hamilton Assoc. 1891-92, 29-35.)

The author takes up cudgels in defense of the vegetable origin of many organisms which have been classed as *Incertæ Sedis, Buthotrephis, Palæophycus and Palæochorda* are the subjects of interesting memoranda.

Notes on the structure of the Fruit-stone of the Date, Phœnix Dactylifera, L. J. L. Zabriskie. (Journ. N. Y. Micros. Soc. viii. 107-112, plate 37.)

Noticia y Descripcion de una Variedad de la Breweria Mexicana, Hemsley. M. M. Villada. (La Naturaleza (II.), ii. 127-128, one plate.)

Pasithea cærulea. J. D. Hooker. (Curt. Bot. Mag. t. 7249.)

Peperomia inquilina. W. Botting Hemsley. (Gard. Chron. xii. 428.)

The description of a new Central American species.

Plant Dissemination—A peculiar case of. Edward L. Berthoud. (Bot. Gaz. xvii. 321-326).

Argument for the distribution of plants through the migration of the Buffalo.

Plants and Insects—Some Interrelations of. C. V. Riley. (Proc. Biol. Soc. Washington, vii, 81.)

Pollination of Flowers—A Lecture on the. L. H. Pammel. Des Moines, 1892. Illustrated.)

Polygonum persicarioides, H. B. K. J. M. Holzinger. (Bot. Gaz. xxii. 295, 296.)

Notes on the species and record of its occurrence in Texas.

Prasiola—Ueber die Fortpflanzung von. G. de Lagerheim. (Ber. Deut. Bot. Gesell. x. 366, with plate.)

Preliminary Comparison of the Hepatic Flora of Boreal and Subboreal Regions. Lucien M. Underwood. (Bot. Gaz. xvii. 305-312.)

Preservation of Plants as Fossils. Jos. F. James. (Jour. Cin. Soc. Nat. Hist. xv. 75-78. Also reprinted.)

After a very commonplace and incomplete presentation of the subject the author winds up with what he calls the "chemical

process," for an example of which he quotes the discolorations made by leaves which have fallen on a smooth pavement during a rain, which he regards as having "left their impress on the stone!" We offer this hint to those who are engaged in the study of nature printing processes as valuable. A. H.

Sida quinquenervia, Duchass. (Icon. Plant. pl. 2249.)

Sphagna—Einige neue exotische. C. Warnstorf. (Hedwigia, xxxi. 174-182, two plates.)

One would suppose that this genus had been pretty well explored in North America, but here comes Herr Warnstorf again with four proposed new species—*S. Labradorense*, from Labrador, received from Prof. Macoun; *S. dasyphyllum*, collected by Dr. Evans, at New Haven; *S. Orlandense*, from Florida, received from Prof. Eaton; *S. Mohrianum* and *S. Mobilense*, collected by Dr. Mohr, at Mobile, Ala.

Spiræa lobata. (Meehan Month. ii. 145, with colored illustration.)

Spirochæten—Notiz uber phycochromhaltige. G. de Lagerheim. (Ber. Deut. Bot. Gesel x. 304.)

A new genus *Glaucospira*, with two species *G. agilissima* and *G. tenuior*, from the vicinity of Quito, are described.

Systematic and Alphabetic Index of New Species of North American Phanerogams and Pteridophytes, published in 1891. Josephine A. Clark. (Cont. U. S. Nat. Herb. 1, 151-188.)

This most useful compilation will be of the greatest service to all systematic botanists. It gives, in addition to the names of plants proposed as new species, the new binomial combinations which have been in transfering species from one to another or in taking up older specific names. These new combinations are distinguished from the new species by the omission of the locality from which the plants were derived. It is highly gratifying to learn from a foot-note by Dr. Vasey, that it is proposed to make such a list an annual feature in the work of the National Herbarium.

Teratological Notes. Edward L. Greene. (Pittonia, ii. 261, 262; 299, 300.

Record of double flowers in *Delphinium patens* and *Triteleia*

laxa, prolification in *Rosa lævigata*, tetramerous flowers in *Fragaria Californica*, phyllody of the tip of the spike in *Plantago lanceolata* (we have noticed this once or twice about New York), the production of two cherries from flowers of *Cerasus mollis*, and of the same duplication in the Peach. N. L. B.

The Islay. (Gard. and For. v. 469.) With illustration of *Prunus ilicifolia.*

Ueber Tertiäre Fagus-Arten der Südlichen Hemisphäre. C. F. von Ettingshausen. (Sitzb. K. Akad. Wiss. Wien., Jahrgang 1891, 114-137, Taf. i, ii.)

Twelve fossil species of the genus *Fagus* are described, ten of which are new. *F. Wilkinsoni*, *F. Etheridgei*, *F. Müelleri*, *F. ulmifolia* and *F. Shagiana* are figured on T. i. *F. Moorei*, nature printed, is represented by ten figures on T. ii.

Uredineen—Ueber einige in Sudamerika auf Berberis Arten wachsende. P. Magnus. (Ber. Deut. Bot. Gesel. x. 319, with plate.)

Variations of the Strawberry Leaf. C. B. Atwell. (Bot. Gaz. xvii. 336-337).

Woody Plants of Western Wisconsin. L. H. Pammel. (Iowa. Acad. Sci. i.; Pt. ii.)

Proceedings of the Club.

TUESDAY EVENING, OCTOBER 11, 1892.

Vice-President Allen in the chair, and nineteen persons present. Dr. Rusby was elected secretary pro tem.

The report of the Instruction Committee for 1892, was presented by its Chairman, Dr. Rusby, accepted and ordered on file.

Mr. Lighthipe reported upon several botanical excursions which he had made during the summer. North of Mountain House in the Catskills during the last week in August he had found *Arenaria Grœnlandica*, *Potentilla tridentata* (in fruit), and *Arctostaphylos Uva-ursi* (in fruit). At Haynes Falls, altitude about 2,000 feet, he had found *Cornus Canadensis* (in fruit), *Hieracium aurantiacum*, *Adlumia fungosa*, *Impatiens pallida*, *Habenaria Hookeri*, *Chiogenes* and *Monarda fistulosa*. At Bald Mountain near Scranton, about the same ele-

vation, he had found *Potentilla tridentata*, *Asplenium montanum*, *Gentiana quinquefolia*, *Veronica scutellata*, *Polygala paucifolia* and *Rhododendron maximum*. In the vicinity of his own home near Woodbridge, N. J., he had found *Pentstemon lævigatus* var. *Digitalis*, and the white form of *Gerardia purpurea*. At Milburn N. J., he had found *Veronica Anagallis*. Near New Lisbon, N. J., he had found *Gyrotheca tinctoria*, *Sabbatia lanceolata*, *Cyperus*, *Torreyi* and *Lygodium palmatum*. In reply to a question by Dr. Rusby, Mr. Lighthipe stated that he had found only one color among the flowers of *Impatiens pallida*. Dr. Rusby spoke of a large, nearly white-flowered form which he had found abundantly in the Catskills.

Mr. Ogden reported that he had noticed a decided fragrance to the flowers of *Habenaria orbiculata* at Tannersville, N. Y., while in other places they were not fragrant. Dr. Rusby remarked that he had noticed the same phenomenon in *H. dilatata*, the flowers of some plants observed in Vermont and New Hampshire being exceedingly fragrant, while those of other plants were devoid of any odor.

Dr. Allen stated that twice in eight or nine years *Adlumia fungosa* had spread up the Chapaug Railroad in Connecticut, and had once become quite abundant near Litchfield, but it had hitherto failed to become permanent. He also stated that he had observed a form of *Chara aspera* which had acquired the habit of not fruiting, relying upon its underground tubers, containing starch, as a means of distribution. He had always supposed that owing to the strong mephitic odor of these tubers, they would not be grateful to water birds, but this season he had observed ducks feeding eagerly upon them. Dr. Allen also reported that he had obtained from Ohio a peck of the seeds of *Nelumbo* and sowed them in Litchfield Lake with the result that none sprouted. After some discussion by Mr. Hogg, who referred to other instances similar to this, it was thought probable that the failure to germinate had been due to the fact that the seeds had become more or less dry between the time of gathering and planting.

Mr. Hollick read the announced paper of the evening on "The Palæobotany of the Yellow Gravel of Bridgeton, N. J., illustrated by specimens and drawings.

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